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Research Note

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A DEVICE FOR RECORDING SPECIMEN WEIGHTS

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ABSTRACT

A device that gives a continuous record of specimen weight change is often desirable in research investigations. Described herein is such a weight-recording device that uses a Toledo balance and a hydrothermograph recorder, equipment common to practically all research laboratories.

In some studies, a continuous record of specimen weight changes is required. A good example of such a study is when wood specimens are being dried and a continuous record of moisture content changes is required. To obtain such weight records, the specimen may be suspended from a balance that is periodically read and weights recorded. However, a more efficient method is to suspend the wood specimen from some type of weight-recording chart recorder. Then, a continuous record is readily obtained as weight of the specimen changes. This method may also be desirable for other sample materials such as soil or herbage.

In conjunction with wood drying experiments a weight-recording device was put together utilizing the balance works of a 2,500-gram Toledo balance[2] and a Bendix hydrothermograph recorder (figure 1).

The specimen is suspended by wire from the balance pan by using a suitable frame. The thermometer entry port on the top of the drying oven is used for access and connection between balance pan and specimen (figure 2).

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[1] The authors are Project Leader-Principal Wood Technologist and Wood Technologist, respectively, stationed in Missoula, Montana, at the Forestry Sciences Laboratory, which is maintained in cooperation with the University of Montana.

[2] The use of trade names herein is for identification only and does not necessarily imply endorsement by the USDA Forest Service.

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On the hydrothermograph recorder the arm connecting the temperature actuator and the pen set is disconnected. The pen connector is slightly lengthened, rotated 90 degrees, and connected by a rod to the balance pan. The chart and pen can be calibrated by adjusting the lengths of either the pan connecting arm or the pen connecting arm.

A chart paper that is reasonably well coordinated with anticipated weight readings should be selected; the hydrothermograph recorder clock is set for one revolution per 24 hours, and the device is ready to continuously record specimen weights.

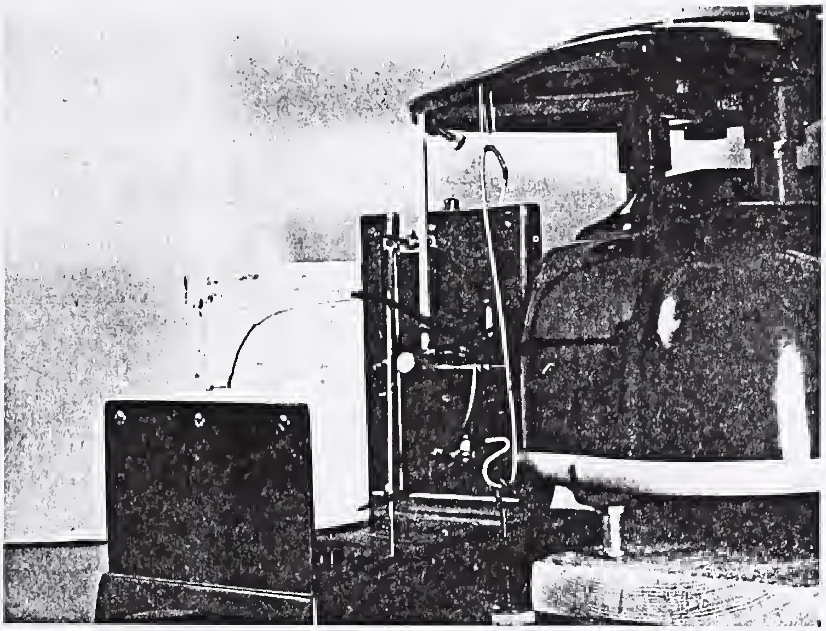

Figure 1.--Essential components of weighing and recording device.

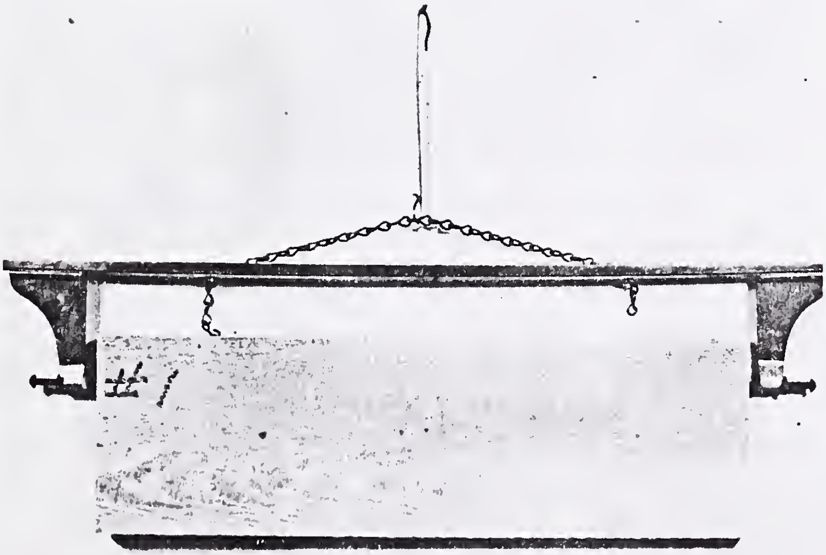

Figure 2.--Device for suspending wood specimen in oven.